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(74) Agents: **FAIR, Paul, A. et al.**; FMC Corporation, 1735 Market Street, Philadelphia, PA 19103 (US).

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(71) Applicant (*for all designated States except US*): **FMC CORPORATION** [US/US]; 1735 Market Street, Philadelphia, PA 19103 (US).

(72) Inventors; and

(75) Inventors/Applicants (*for US only*): **GADKARI, Vijay, Kamalakant** [IN/IN]; 4/34 Seema, N. Datta Road, R Bungalow, Andheri, Mumbai 400053 (IN). **RANDIVE, Vinayak, Bhalchandra** [IN/IN]; B67/302, Muchkund Cooperative Society, Vasant Vihar, Pokhran Road No. 2, Thane 400601 (IN). **VENKAT, Mahalingam, Ramanan** [IN/IN]; 518/15 Kalptaru, Goshala Road, Mulund (West), Mumbai 400080 (IN). **BETRABET, Namita, Ashok** [IN/IN]; 4 B Maria Apartments 78, Pali Hill Road, Bandra, Mumbai 400050 (IN). **KADAM, Sitaram, Anant** [IN/IN]; Indraprastha, 102, 1st Floor, Opposite Jaihind Cinema, Dr. B A Road, Mumbai 400012 (IN).

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(54) Title: **TOOTHPASTE COMPOSITIONS WITH REDUCED ABRASIVITY**

(57) Abstract: Toothpaste compositions are disclosed. The toothpaste composition comprises a binder; a surface active agent; an abrasive; a humectant; and water; in which: (1) the abrasive is silica, the composition additionally comprises a silica thickener, and the composition comprises 1 to 7 wt % of the silica thickener, less than 15 wt % of the silica abrasive, 45 to 70 wt % water, 0.8 to 3.0 wt % of a surface active agent; 0.05 to 3.0 wt % the binder; or (2) the abrasive is silica, the composition additionally comprises a silica thickener, the composition comprises 2 to 22 wt % total silica, 0.8 to 3.0 wt % of a surface active agent; 0.05 to 3.0 wt % the binder, and the composition additionally comprises about 0.1 to 8.0 wt % of non-colloidal microcrystalline cellulose, colloidal microcrystalline cellulose, or a mixture thereof; or (3) the binder is a calcium based abrasive, the binder is a cellulose gum, and the composition comprises 25 to 55 wt % of the calcium based abrasive, 35 to 60 wt % water, 0.8 to 3.0 wt % of the surface active agent, and 1.0 to 3.0 wt % of the binder.

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# INTERNATIONAL SEARCH REPORT

International application No.

PCT/US04/03242

## A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : A61K 7/16, 7/18

US CL : 424/49; 514/781

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

U.S. : 424/49; 514/781

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,601,803 A (MASTERS ET AL) 11 February 1997 (11.02.1997), see the entire document.	1-7, 11-13 and 18-21
X	US 4,701,319 A (WOO) 20 October 1987 (20.10.1987), see the entire document.	1-7, 11-13 and 18-21

☐ Further documents are listed in the continuation of Box C.

☐ See patent family annex.

### \* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"B" earlier application or patent published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

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Mail Stop PCT, Attn: ISA/US  
Commissioner for Patents  
P.O. Box 1450  
Alexandria, Virginia 22313-1450

Facsimile No. (703) 872-9306

Authorized officer

Frederick F. Krass

Telephone No. (571) 272-1600

# INTERNATIONAL SEARCH REPORT

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## Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. ☐ Claims Nos.:  
because they relate to subject matter not required to be searched by this Authority, namely:
2. ☐ Claims Nos.:  
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:
3. ☒ Claims Nos.: 8-10, 14-17 and 22  
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

## Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

1. ☐ As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. ☐ As all searchable claims could be searched without effort justifying an additional fee, this Authority did not invite payment of any additional fee.
3. ☐ As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. ☐ No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

☐  
☐

The additional search fees were accompanied by the applicant's protest.

No protest accompanied the payment of additional search fees.